

**Indiana State Department of Health
Division of Consumer Protection
Food Protection Program**

Guidance on Sorghum Production

Purpose

The purpose of this program guidance letter is to provide sorghum producers with regulatory information for sorghum processing operations. This guidance is intended to assist the industry in being able to produce their sorghum intended for retail sale in a safe manner and for health departments to use in the inspection of these operations.

Background

Sorghum is a low risk food product and falls into a group known as “value-added” products. Sorghum, a raw agricultural commodity, is usually pressed from sorghum stalks to make sorghum syrup. The maturity of the crop affects the composition of the juice and sugar content. If harvested too early, the syrup can crystallize and gel. Juice is usually extracted from the cane using a mill, and then strained to remove large pieces prior to entering an evaporator. An evaporator steams off excess water at a high temperature for several hours until sorghum syrup is produced. It takes 6 to 12 gallons of raw juice to make one gallon of sorghum syrup. The syrup is bottled after filtering and cooling at 140 to 160 F. Sorghum season is usually September-October in Indiana.

The crushing of the sorghum stalks may be conducted under a roof or outdoors and the evaporating process and packaging is completed in a sorghum building.

This guidance is intended only for the processing of sorghum and not for other production of products where sorghum may be in ingredient.

There are three categories of food establishments – a retail food establishment operated under 410 IAC 7-24 pursuant to IC 16-42-5; a wholesale food establishment operated under 410 IAC 7-21 pursuant to IC 16-42-5; and a food processing plant operated solely under IC 16-42-5. Sorghum is usually processed in a sorghum building. This building is considered a food processing plant operated under IC 16-42-5 and does not need to meet the requirements of 410 IAC 7-24, Retail Food Establishment Sanitation Requirements, or 410 IAC 7-21, Wholesale Food Establishment Sanitation Requirements. For purposes of this guidance document, a sorghum building includes a structure that may be located in the field, close to a house or an indoor facility at another location.

This document is intended to address the processing of sorghum for retail sales only. Sorghum sold at wholesale, whether in state or out of state, would need to meet all the requirements of IC 16-42-5, Food: Sanitary Requirements for Food Establishments and 410 IAC 7-21, Wholesale Food Establishment Sanitation Requirements. All other sections of 16-42-5 not cited below, must be met.

It is recommended that sorghum processors desiring to sell their product contact the local health department for inspection and permits. The health department may or may not conduct an inspection since this is a low risk food.

Definition

Sorghum syrup: Sorghum syrup is a natural sweetener made by processing juice squeezed from the stalks of certain types of sorghum. Specialized milling equipment is necessary to extract the juice, and evaporative pans with heating units are used to steam off excess water, leaving syrup.

By federal law, sorghum must contain not less than 74 percent by weight of soluble solids derived solely from such juice. It may have added salt, chemical preservatives, defoaming agents, enzymes, anticrystallizing agents or antisolidifying agents. However, if other products are added, such as corn syrup, the label must reflect this in the name, i.e. "Sorghum with Corn Syrup."

The term "sweet sorghum" is used to identify a type of sorghum (*Sorghum bicolor*) that is sweet and juicy. Sweet sorghum is grown for syrup or forage, whereas some other sorghums, such as kafirs and milos, are grown for grain. The term "sorghum molasses" is a colloquial expression incorrectly applied to sorghum syrup. Molasses is a by-product of the sugar crystallization from sugarcane juice.

Guidance

The following is guidance for a food processing plant that processes sorghum. Food processing plants must be operated pursuant to IC 16-42-5. The following guidance states the statutory provision (*in italics*) followed by guidance specific to sorghum processing.

IC 16-42-5-6 Conditions of health and comfort

Sec. 6. A food establishment must meet the following conditions:

- (1) Be adequately lighted, heated, drained, and ventilated.*
- (2) Be supplied with uncontaminated running water.*
- (3) Have adequate sanitary facilities.*

The sorghum building, which may be located near the field or any other place used as a food establishment, must meet the following requirements:

1. Adequately lighted, heated, drained and ventilated

- Lighting may be electrical, natural light coming through windows, artificial electrical lights or gas lanterns. Lighting must be placed as to avoid contamination of the sorghum, if a fixture should break.
- Light bulbs shall be shielded, coated, or otherwise shatter resistant over the processing and bottling equipment.
- Since minimal water is used for hot water washing of equipment, this water does not fall under the classification of “waste water,” but should be disposed of in a manner that does not create a safety or unsanitary condition for the food establishment.

Ventilation should be such as to minimize odors and vapors. Fans, screened windows or other effective means may be used to achieve adequate ventilation.

2. Supplied with uncontaminated running water
 - A portable container of potable water, such as a water cooler, may be used as the source of running water.
 - If well water is used, a sample must be taken annually to determine that it is potable. A copy of the sample results shall be kept on site and available for review.
3. Adequate sanitary facilities
 - Toilet facilities in a nearby farmstead, home or business may be used if the honey house is remotely located.

IC 16-42-5-7 Construction to facilitate cleanliness

Sec. 7. Each food establishment and the machinery used in each food establishment must be constructed so as to be easily and thoroughly cleaned.

Each food establishment and the machinery used must be constructed so as to be easily and thoroughly cleaned.

- The sorghum building and equipment must be constructed to meet the needs of the sorghum process and be easily cleanable.

IC 16-42-5-8 Cleanliness and sanitation of premises and vehicles

Sec. 8. The floors, sidewalls, ceiling, furniture, receptacles, implements, and machinery of a food establishment and a vehicle used to transport food products must at all times be clean and sanitary.

The floors, sidewalls, ceiling, furniture, receptacles, implements, and machinery of a food establishment and a vehicle used to transport food products must at all times be clean and sanitary.

- Non-food contact surfaces, such as floors, sidewalls, ceiling and vehicles, shall be cleaned prior to the start of the season and as needed. Surfaces should be free of any loose paint or other foreign material that could fall into the extractor or other equipment and be a source of contamination.

- All food contact equipment shall be stored off the floor.
- Food contact surfaces shall be in good repair, easily cleanable, food grade quality and not contain any chemicals or other hazardous materials. This includes storage tanks/barrels, piping, sump tank, filtering cloths, and any other processing or filling equipment and containers.
- Equipment shall not contain any deleterious substances, such as lead, lead solder or lead paint. .
- Glass or plastic jars should be cleaned, as needed, before filling either by using pressurized air, a dishwasher or manually washed and air dried.
- Sorghum may be sampled at the time of inspection to test for lead content, foreign material, corn syrup or any other appropriate analyses.
- Food contact equipment and surfaces shall be cleaned prior to and after use, and whenever it becomes contaminated, using suitable cleaning compounds.
- Vehicles used to transport the sugar cane or used for delivery of finished products shall be clean and free of any contaminants.

IC 16-42-5-9 & 10 Walls, ceilings, floors; construction; washing

Sec. 9. (a) The sidewalls, woodwork, and ceiling of a food establishment must be made of an impervious material with a finish that is washable.

(b) The sidewalls, woodwork, and ceiling must be kept washed clean with detergent and water.

Sec. 10. (a) The floor of a food establishment must be made of nonabsorbent material that can be flushed with water.

(b) The floor of a food establishment must be kept washed clean with detergent and water.

The sidewalls, woodwork, ceiling and floor of a food establishment must be made of impervious/nonabsorbent material that can be washed clean with detergent and water.

- Walls and ceilings may be constructed of smooth sealed wood or other impervious material, but must be free from unnecessary dust or soil accumulations.
- The floor must be sealed concrete, treated or sealed wood or other material that is nonabsorbent and can be easily cleaned.
- Milling of the sorghum should be done under overhead protection.

IC 16-42-5-11 Domestic animals; rodents; insects

Sec. 11. A food establishment must be protected by all reasonable means against the presence of and entrance of domestic animals, rodents, flies, and other insects.

A food establishment must be protected by all reasonable means against the presence of, and entrance of domestic animals, rodents, flies, bees and other insects.

- Outer openings should be protected and floor/wall junctures sealed as necessary against rodents, squirrels and other vermin. Domestic animals are not allowed in the food establishment.

IC 16-42-5-13 & 14 Toilet room; Washrooms

Sec. 13. (a) A food establishment must have a convenient toilet room separate and apart from and not opening directly into a room that is used for food handling.

(b) The floor of the toilet room must be made of a nonabsorbent material.

(c) The floor of the toilet room shall be washed and scoured daily.

(d) Each toilet fixture and each toilet room must be adequately ventilated.

Sec. 14. (a) A food establishment must have a washroom adjacent to each toilet room.

(b) The washroom shall be supplied with adequate lavatories, soap, hot and cold running water, and clean individual towels.

(c) The washroom shall be kept clean by washing with detergent and water.

A food establishment must have a convenient toilet room separate and apart from and not opening directly into a room that is used for food handling.

A washroom must be adjacent to each toilet room.

- If the food establishment does not have a toilet room provided, then a restroom, in a nearby home, farmstead or business can be utilized. The restroom must have a toilet with a handsink, soap, potable hot and cold running water, and clean individual towels.

IC 16-42-5-15 & 18 Food handling room; exclusive use Sleeping in food handling rooms

Sec. 15. A room that is used for food handling or that is equipped for use for food handling may not be used for any other purpose.

Sec. 18. A person may not live or sleep in a room used for food handling or in a room opening directly into a food establishment.

Whatever facility is used, it cannot be used for any other purpose other than for sorghum processing and packaging at the time of processing. If a home kitchen is used as a food establishment for this seasonal operation, then no other rooms can open directly into the kitchen that is used for living or sleeping purposes without at least a door that can minimize unauthorized entry.

- If a sorghum building is used, it can only be used for sorghum processing/filling. However, if the room meets all requirements of IC 16-42-5 and 410 IAC 7-24, it can be used for producing other sorghum products.
- In the food establishment, no storage or handling of gasoline, oil, pesticides, or other hazardous materials shall be allowed.
- Equipment may be stored in the sorghum building in the off season.

IC 16-42-5-16 Dressing rooms

Sec. 16. (a) Rooms separate and apart from rooms used for food handling must be provided for the changing and hanging of wearing apparel.

(b) The rooms for changing and hanging wearing apparel must be kept clean.

Clothing apparel must be stored in another room not used for any part of the food establishment. The changing of clothing apparel must also be conducted in areas not part of the food establishment.

IC 16-42-5-21 Washing; employees

Sec. 21. A person who works in a food establishment shall wash the person's hands and arms thoroughly with soap and clean water before beginning work, before resuming work after a rest period, and before resuming work after visiting a toilet room.

Persons working in a food establishment must be able to wash their hands and arms with soap and clean water before beginning work, before resuming work after breaks; or visiting a toilet room.

- If the restroom is not located nearby and convenient to the food establishment, a hand washing facility shall be provided at the site in the processing area. Soap, disposable paper towels, and a method to adequately wash hands shall be provided and used. A portable water dispenser may be used as part of a hand washing facility.

IC 16-42-1 and IC 16-42-2; Food, Drug & Cosmetic Act

This statute is provided to ensure that foods are safe, wholesome and not adulterated. These include the requirement that sorghum in packaged form must be labeled with name and address of the manufacturer, packer or distributor, and an accurate statement of the quantity of the contents in terms of weight and measure.

In addition, 21 Code of Federal Regulations (CFR), Part 131-169, states the final product can not contain ingredients that are deceptive or fraudulent to the consumer. These products may not have added ingredients, such as corn syrup or coloring, if they are to maintain the common name of the product. Sorghum also has a standard of identity and must meet 21 CFR 168.60